**Code No: E-12043/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, November 2022**

**Subject: Pathophysiology (Elective)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

1 a) Describe Cell injury. What are the causes of cell injury?
b) Write briefly about the basic mechanism involved in the process of inflammation.

2. a) Explain the role of various chemical mediators of inflammation.
b) Write briefly about the principle of wound healing in skin.

3. a) What is hypertension? Explain its pathogenesis.
b) Discuss the etiology and pathogenesis of acute renal failure.

4. a) Discuss the pathogenesis of COPD.
b) Write briefly about chronic renal failure

5. a) Explain the cause of megaloblastic anaemia.
b) Write a note on polycystic ovary syndrome.
c) Describe Type – I and Type – II diabetes mellitus

6. a) Define Psychosis. What are the symptoms of Psychosis and its treatment?
b) Discuss the pathophysiology of peptic ulcer.

7. a) Define cancer. Discuss the pathophysiologyof cancer.
b) What are the differences between benign & malignant tumours

8. a) Explain alcoholic liver disease.
b) What is gout? How is it caused and treated.

9. a) Discuss the pathogenesis of meningitis.
b) Discuss the pathogysiology of tuberculosis

10. a) Explain the causes and symptoms of Syphilis.
b) Write the pathophysiology of Urinary Tract infections.

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**Code No: E-12044/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV Semester (CBCS) (Backlog) Examination, November 2022**
**Subject: Green Chemistry (Elective)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**
**Draw neat and labelled diagrams where ever necessary**

1. Write basic principles of green chemistry with suitable examples.
2. Describe the history and development of green chemistry.
3. Write the principle and process involved in Michael reaction and Wurtz synthesis.
4. Write a note on solvent less organic synthesis.
5. Discuss the principle and process involved in Fries rearrangement and Diels Alder reaction by microwave method.
6. Discuss the principle and process involved in Strecker and Reformatsky reactions.
7. Give a brief note on catalytic reactions.
8. Write a note on solid support reactions.
9. Write the green synthesis for ibuprofen and Nicotinic acid.
10. Write the green synthesis for Paracetamol and Aspirin.

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**Code No: E-12042/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV Semester (CBCS) (Backlog) Examination, November 2022**
**Subject: Bio-Statistics (Pharmacostatistics)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**
**Draw neat and labelled diagrams where ever necessary**

1. (a) Explain about measures of location.
   (b) Explain about less than and greater than cumulative curves.

2. (a) Find Mean and standard deviation to the following data.

| Class Interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|---|---|---|---|---|---|---|---|
| Frequency | 15 | 27 | 36 | 45 | 32 | 23 | 12 |

3. (a) Define binomial and Poisson Distributions.
   (b) State Addition and Multiplication theorem of probability.

4. (a) Explain about Normal distributions.
   (b) find the probability to have 53 Sundays in a leap year.

5. Explain about (i) Random Sampling methods (ii) Sampling errors

6. Explain about (i) Cluster Sampling (ii) Bar and Pie diagrams

7. (a) Explain Sampling and Non sampling errors.
   (b) Describe the steps which are involved in testing of Hypothesis.

8. Explain about (i) Theory of Estimation (ii) Bayesian estimation (iii) F test

9. (a) Describe the analysis of variance one-way classification with ANOVA table.
   (b) Explain Chi-Square test of independence of Attributes.

10. (a) Describe Randomized Block Design with ANOVA Table
    (b) Explain Basic principles of Design of Experiments.

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**Code No.E-12041/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, November 2022

## Subject: Pharmaceutical Biochemistry

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

1 Discuss the oxidation of a molecule of acetate in a mitochondrion and explain the energy yield in this process.

2 Enumerate different transport processes across a cell membrane.

3 (a) Explain the salient features of biosynthesis of DNA.
(b) Explain the physiological role of DNA.

4 Write the principle involved in quantitative estimation of Glutamic-oxalacetic transaminase and glutamic-pyruvic transaminase in blood and comment the levels of these enzymes in blood.

5 Explain the mechanism in protein biosynthesis and pyramidine nucleotide biosynthesis.

6 (a) Explain the clinical significance of blood levels of albumin-globulin ratio and creatinine.
(b) Write short notes on inborn errors in metabolism.

7 What are co enzymes? Discuss the structure and biochemical functions.

8 Explain in detail about TCA cycle and its significance.

9 (a) Write the biosynthesis of pentose phosphate pathway.
(b) Explain the mechanism of Glycogenolysis.

10 Discuss the Transamination, deamination & decarboxylation reactions of amino acid metabolism.

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**Code No: E-12040/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, November 2022**
**Subject: Pharmaceutical Engineering – II**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

| | | | |
|---|---|---|---|
| 1 | a) | Write different IP grades of powders. | [4] |
| | b) | Explain the principle of particle size measurement by sieves. | [3] |
| | c) | Write the construction and working of Crusher equipment. | [7] |
| 2 | a) | Explain the concept of air filters. | [4] |
| | b) | Write principle and working of double cone classifier. | [6] |
| | c) | Describe the theory of liquid-liquid extraction. | [4] |
| 3 | a) | Write the principles of heat supply and vapor removal in evaporation. | [6] |
| | b) | Explain the concepts of films and scale formation and their prevention. | [8] |
| 4 | a) | Write the theories applicable to separation of binary mixtures by distillation. | [6] |
| | b) | Explain the theory, equipment and applications of molecular distillation. | [8] |
| 5 | a) | Explain the construction and properties of tower packing in gas absorption | [6] |
| | b) | Describe the theory, equipment and applications of drying equipment for damp solids. | [8] |
| 6 | a) | Explain the concepts of crystallization, caking of crystals and its prevention | [8] |
| | b) | Describe construction and Woking of Vacuum crystallizer | [6] |
| 7 | a) | Classify mixers. Write objectives of mixing | [6] |
| | b) | Explain construction and Woking of liquid-liquid mixing equipment | [8] |
| 8 | a) | Explain construction and Woking of kneading mixing equipment | [7] |
| | b) | Explain construction and Woking of ribbon blender | [7] |
| 9 | a) | Write the significance of lubrication die wall | [4] |
| | b) | Describe the transmission of forces in powder mass and mention the punch force measurement techniques. | [10] |
| 10 | a) | What is automatic process control and mention its advantages. | [5] |
| | b) | Explain the measurement techniques for process variable – temperature. | [9] |

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**Code No: E-12039/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV Semester (CBCS) (Backlog) Examination, November 2022

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

1 (a) Elucidate the structure of fructose. Explain the colour reactions of carohydrates.
(b) Define oil and fat. What is the difference between oil and fat? What is meant by rancidity and how one can prevent it?

2 Explain the principle, method and significance of the following:

Acid value, saponification value and iodine value.

3 Classify protein. Explain the general structure of protein. Explain the C-terminal end group analysis in polypeptides.

4 Discuss the chemistry of thyroxine. Add a note on antithyroid drugs. Give the structure and mechanism of action of any two antithyroid drugs.

5 (a) Explain the structure elucidation of quercetin.

(b) Write the structure and uses of citral menthol and camphor.

6 (a) Define and classify flavonoids. Add a note on their colour reactions.

(b) Explain the structure elucidation of menthol.

7 Explain the general structure elucidation of alkaloids in detail.

8 (a) Write the chemistry of caffeine and give the chemical reactions.

(b) Discuss the source and chemistry of ephedrine.
(c) Explain the extraction methods in detail.

9 (a) Define and classify steroids. Add a note on steroidal contraceptives.

(b) Explain the chemistry of corticosteroids.

10 (a) Explain the colour reactions of cholesterol.

(b) Explain the SAR of cardiac glycosides. Give examples of any two cardiac glycosides and give their structures.

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**Code No. D-8206/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, March 2022**

**Subject: Pathophysiology (Elective)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

**(5 x 14 = 70 Marks**)

1 (a) Describe Cell injury. What are the causes of cell injury?
(b) Describe the process of wound healing.

2 (a) Describe reversible and irreversible cell injury.
(b) What is hypertrophy and hyperplasia?

3 (a) Discuss the pathophysiology of hypertension.
(b) Describe myocardial infraction its causes and management.

4 (a) Write briefly about chronic renal failure.
(b) Discuss the pathogenesis.

5 (a) What is anaemia? Classify various types of anaemia along with its symptoms.
(b) Write a note on polycystic ovary syndrome.

6 (a) Discuss the pathophysiology of Alzheimer's disease.
(b) What is peptic ulcer? Explain its pathogenesis.

7 (a) Define cancer. Write the pathogenesis of cancer.
(b) Discuss the pathophysiology of gout.

8 (a) Describe the causes and symptoms of jaundice.
(b) What are the cause and symptoms of inflammatory bowel disease?

9 (a) Discuss the symptoms and etiology of AIDS.
(b) Define meningitis and write its pathophysiology.

10 (a) Discuss the cause and symptoms of gonorrhorea.
(b) Write the pathophysiology of urinary tract infections.

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**Code No: D-8207/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, March 2022**

**Subject: Green Chemistry (Elective)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions.** **(5 x 14 = 70 Marks)**

1 Write basic principles of green chemistry with suitable examples.

2 Mention the various synthesis approaches of green chemistry

3 discuss about various alternative solvents used in green chemistry strategies.

4 Discuss about Michael and Wurtz synthesis

5 Explain about microwave mediated reactions.

6 Discuss about Ultrasonic mediated reactions.

7 Write a note on solid support reactions.

8 Write a note on phase transfer reactions

9 Write the green synthesis for Paracetamol and Nicotinic acid

10 Write the green synthesis for Ibuprofen and Aspirin.

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**Code No. D-8203/ CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV Semester (CBCS) (Backlog) Examination, March 2022

### Subject: Pharmaceutical Engineering-II

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**
**(5 x 14 = 70 Marks)**

1 (a) Write different sieve standards.
(b) Write the objectives of size reduction.
(c) Write the construction and working of fine grinding equipment.

2 (a) Explain the concept of size separation by setting.
(b) Write factors affecting choice of extraction process.
(c) Describe the theories of solid liquid extraction.

3 (a) Write the classification of evaporation equipment.
(b) Mention the factors influencing evaporation.
(c) Explain the procedure of evaporation under reduced pressure.

4 (a) Explain the concepts of sieve plate and packed columns in rectification.
(b) Explain the theory, equipment and applications of azeotropic distillation.

5 (a) Describe the theory, equipment and applications of drying equipment for slurries.
(b) Explain the concept of gas absorption and desorption and mention their applications.

6 (a) Explain the importance of crystal characteristics in pharmacy.
(b) Describe construction and Woking of Swenson Walker crystallizer.

7 (a) Describe ion exchange principles, types and application in pharmacy.
(b) Explain construction and Woking of ointment mill.

8 (a) Write factors to be considered for selection of mixers.
(b) Explain construction and Woking of solid-solid mixing equipment.

9 Explain the measurement techniques for process variable-level.

10 Describe the factors effecting strength of granules and tablets.

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**Code No. D-8202/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV Semester (CBCS) (Backlog) Examination, March 2022

### Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**
**(5 x 14 = 70 Marks)**

1 (a) Elucidate the structure of fructose. Explain the colour reactions of carohydrates.
(b) Define oil and fat. What is the difference between oil and fat? What is meant by rancidity and how one can prevent it?

2 Explain the principle, method and significance of the following:
Acid value, saponification value and iodine value.

3 Classify protein. Explain the general structure of protein. Explain the C-terminal end group analysis in polypeptides.

4 Discuss the chemistry of thyroxine. Add a note on antithyroid drugs. Give the structure and mechanism of action of any two antithyroid drugs.

5 (a) Explain the structure elucidation of quercetin.
(b) Write the structure and uses of citral menthol and camphor.

6 (a) Define and classify flavonoids. Add a note on their colour reactions.
(b) Explain the structure elucidation of menthol.

7 Explain the general structure elucidation of alkaloids in detail.

8 (a) Write the chemistry of caffeine and give the chemical reactions.
(b) Discuss the source and chemistry of ephedrine.
(c) Explain the extraction methods in detail.

9 (a) Define and classify steroids. Add a note on steroidal contraceptives.
(b) Explain the chemistry of corticosteroids.

10 (a) Explain the colour reactions of cholesterol.
(b) Explain the SAR of cardiac glycosides. Give examples of any two cardiac glycosides and give their structures.

**Code No. D-8205/ CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV Semester (CBCS) (Backlog) Examination, March 2022**

**Subject: Biostatistics (Pharmacostatistics)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions. All questions carry equal marks.**

**(5 x 14 = 70 Marks)**

1 (a) Describe the graphical representation of frequency distribution.
(b) Draw the Scatter diagram and find the correlation between the variable to the following data.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X | 1 | 3 | 4 | 6 | 8 | 9 | 10 |
| y | 3 | 4 | 5 | 8 | 9 | 10 | 12 |

2 (a) Find out the arithmetic average, standard deviation from the following data of Hb% of mothers.

| Hb% | 8-9 | 9-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 |
|---|---|---|---|---|---|---|---|
| Mothers | 8 | 14 | 21 | 25 | 15 | 10 | 7 |

(b) Explain about central tendency measures.

3 Explain about
(a) Normal distribution and state its properties.
(b) Addition and Multiplication theorems of probability.

4 (a) Define Binomial distribution and discuss its applications.
(b) Find the probability of getting at least one head in tossing of three coins.

5 Write short notes about
(a) 2D and 3D diagrams.
(b) Non-Sampling errors
(c) Sampling Distributions

6 Explain about
(a) Random Sampling Methods.
(b) Stratified Random Sampling.
(c) Systematic Sampling.

7 (a) Explain steps which are involved in testing of Hypothesis.
(b) Write short notes about Interval estimation.

8 Explain about
(a) Bayesian estimation
(b) t-test
(c) Non-Parametric tests.

9 (a) Describe the analysis of variance Two way classification.
(b) Explain Chi-Square test of goodness of fit.

10 (a) Explain about basic principles of Design of Experiments.
(b) Describe about the Latin Square Design.



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**Code No: D-8204/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, March 2022**

**Subject: Pharmaceutical Biochemistry**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer any five questions.** **(5 x 14 =70 Marks)**

1 a) What are biomolecules? Write the classification of carbohydrates with Structures.
   b) What is free energy? Find out its relationship with equilibrium constant?

2 Write the biological significance of ATP?

3 Write the Glycolysis Pathway and its energetic.

4 Write the significance of energetic and pathway of Citric acid cycle?

5 a) Write about ketoacidosis?
   b) Write a note on Disorders of lipid metabolism?

6 Discuss the Synthesis and significance melatonin, dopamine, adrenaline

7 Write the denovo synthesis of purine with neat flow diagram and structures?

8 Write about semiconservative model of DNA replication in detail?

9 a) What are enzymes? Write and nomenclature, properties of enzymes.
   b) Derive the equation for Vmax and Michalis constant?

10 What are co enzymes? Discuss the structure and biochemical functions.

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**Code No. 12296/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV Semester (CBCS) (Backlog) Examination, September 2021

### Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions. All questions carry equal marks.**

**($4 \times 17^{1/2} = 70$ Marks)**

1 (a) Explain the chemistry of glucose. Explain the chemical reaction of glucose with phenyl hydrazine.
(b) What is the pharmaceutical importance of carbohydrates?

2 (a) Differentiate oil and fat. Explain the chemical properties of oils in detail.
(b) Describe the pharmacopoeial methods for testing oil and fat.

3 (a) Classify amino acids and explain any three methods for the synthesis of amino acids.
(b) Discuss the constitution of oxytocin.

4 (a) Explain protein synthesis.
(b) Give the chemistry and biological significance of insulin.

5 (a) Explain the structure elucidation of amygdalin.
(b) Explain the isoprene rule and special isoprene rule with examples.

6 (a) Explain the structure elucidation of arbutin.
(b) Explain the chemistry of citral.

7 (a) Classify alkaloid. Explain the method of extraction of alkaloids. What is the pharmaceutical importance of alkaloids?
(b) Write the reactions to determine O (oxygen)'s functional nature in structure elucidation of alkaloids.

8 (a) Write the source, structure, identification test and uses of quinine, atropine and caffeine.
(b) Classify alkaloids and add a note on the importance of alkaloids.

9 (a) Classify cardiac glycosides. Discuss the chemistry of digitals.
(b) Write a note on oral contraceptives.

10 (a) Classify bile acids. What is the biological significance of bile acids?
(b) Write a note on progestational agents.

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**Code No. 12297/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV Semester (CBCS) (Backlog) Examination, September 2021

### Subject: Pharmaceutical Engineering-II

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **($4 \times 17^{1/2} = 70$ Marks)**

1 (a) Write different IP grades of powder.
(b) Explain the principle of particle size measurement by sieves.
(c) Write the construction and working of Crusher equipment.

2 (a) Explain the concept of air filters.
(b) Write principle and working of double cone classifier.
(c) Describe the theory of liquid-liquid extraction.

3 (a) Write the principles of heat supply and vapor removal in evaporation.
(b) Explain the concepts of films and scale formation and their prevention.

4 (a) Write the theories applicable to separation of binary mixtures by distillation.
(b) Explain the theory, equipment and applications of molecular distillation.

5 (a) Explain the construction and properties of tower packing in gas absorption.
(b) Describe the theory, equipment and applications of drying equipment for damp solids.

6 (a) Explain the concepts of crystallization, caking of crystals and its prevention.
(b) Describe construction and Woking of Vacuum crystallizer.

7 (a) Classify mixers. Write objectives of mixing.
(b) Explain construction and Woking of liquiud-liquid mixing equipment.

8 (a) Explain construction and Woking of kneading mixing equipment.
(b) Explain construction and Woking of ribbon blender.

9 (a) Write the significance of lubrications of die wall.
(b) Describe the transmission of forces in powder mass and mention the punch force measurement techniques.

10 (a) What is automatic process control and mention its advantages?
(b) Explain the measurement techniques for process variable-temperature.

**Code No: 12298/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, September 2021

## Subject: Pharmaceutical Biochemistry

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any Four Questions** **(4 x $17^{1/2}$ = 70 Marks)**

1 a) Write a note on sphingolipids and their importance?
b) Write the classification of proteins with structures?

2 a) Write the difference between exothermic and endothermic reactions?
b) Write short note on cAMP?

3 Write about HMP shunt pathway and its significance?

4 a) What is Oxidative phosphorylations? Write its mechanism and substrate phosphorylation level?
b) Write note on Diabetes Mellitus

5 Write the $\beta$ – Oxidation of Palmitic acid?

6 Discuss the Transamination, deamination & decarboxylation reactions of amino acid metabolism

7 Write the denovo synthesis of pyrimidine nucleotides with neat flow diagram and structures?

8 a) Discuss the structure of DNA, RNA and its functions?
b) Explain the transcription process in prokaryotes?

9 Write the Line Weaver Burke Enzyme kinetics?

10 a) Discuss about enzyme induction and repression?
b) Explain the Therapeutic and diagnostic applications of enzymes

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**Code No. 12299/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV Semester (CBCS) (Backlog) Examination, September 2021**
**Subject: Biostatistics (Pharmacostatistics)**

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **($4x17^{1/2}$ = 70 Marks)**

1 (a) Explain about measures of average and discuss about its objectives.
(b) Explain abut Correlation and Regression.

2 From the data given below, state which team (A or B) is more consistent:

| No. of goals scored in a match | No. of Matches | |
|---|---|---|
| | A | B |
| 0 | 27 | 1 |
| 1 | 9 | 5 |
| 2 | 8 | 8 |
| 3 | 5 | 9 |
| 4 | 1 | 27 |

3 Explain about
(a) Stem and leaf Plots.
(b) Binomial Distribution and Poisson distribution with examples.

4 (a) Define Normal distribution and state its properties.
(b) Five Coins are thrown simultaneously. Find the chance of getting atleast four heads.

5 Explain about
(a) Simple Random Sampling
(b) Cluster Sampling
(c) Sampling and Non-Sampling Errors.

6 (a) 2-D and 3-D diagrams
(b) Sampling distributions
(c) Type I and Type II errors.

7 (a) Define Level of significance and Standard Error.
(b) Explain the steps involved in testing of Hypothesis.
(c) Write short notes about Point estimation and Interval estimation.
8 (a) Discuss about merits and demerits of Non-parametric tests.
(b) Describe the analysis of variance one way classification.
9 (a) Explain about paired t-test and F-test.
(b) Explain about Chi-Square test of Independence of Attributes.
10 (a) Explain about assignable causes and chance causes.
(b) Describe the Randomised Block Design.

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**Code No: 12300/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV-Semester (CBCS)(Backlog) Examination, September 2021**

**Subject: Pathophysiology (Elective)**

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x $17^{1/2}$ = 70 Marks)**

1 (a) Explain different causes of cell injury.
(b) Write briefly about the mechanism of wound healing in skin.

2 (a) Explain the role of various chemical mediators of inflammation.
(b) Discuss the process of atherosclerosis.

3 (a) Describe myocardial infraction its causes and management.
(b) Define the term bronchial asthma and write its pathogenesis.

4 (a) Write briefly about acute renal failure.
(b) Discuss the pathogenesis of angina pectoris.

5 (a) What is anaemia? Classify various types of anaemia along with its symptoms.
(b) Write the pathogenesis of type-I Diabetes.

6 (a) Discuss the pathophysiology of Parkinson's disease.
(b) What is Epilepsy? Explain its pathogenesis.

7 (a) Explain the pathogenesis of cancer.
(b) Discuss the pathophysiology of Rheumatoid arthritis.

8 (a) Describe the cause and symptoms of osteoporosis.
(b) What are the causes and symptoms of alcoholic liver disease?

9 (a) Discuss the symptoms and etiology of tuberculosis.
(b) Write a note on AIDS.

10 (a) Discuss the causes and symptoms of syphilis.
(b) Write the pathophysiology of leprosy.

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**Code No: 12301/CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, September 2021**

**Subject: Green Chemistry (Elective)**

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x $17^{1/2}$ = 70 Marks)**

1 Write the various synthetic approaches of green chemistry.

2 Describe the history and development of green chemistry

3 By giving principle and process involved, discuss two reactions each for Michael and Wurtz synthesis.

4 Discuss about solvent less organic synthesis

5 Discuss the principle and process involved in strecker synthesis and Reformats reaction in Ultra sonification technique.

6 Discuss the principle and process involved in Fries rearrangement and Metal halide reduction by microwave method.

7 Write a note on Bio catalytic reactions.

8 Give a note on reactions catalysed by metal catalysts.

9 By giving suitable examples, explain Wurtz synthesis and Micheal addition using water as solvent.

10 Discuss about alternative reagents used in green chemistry strategies.

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**Code No. 12029/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, March 2021

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x 17 ½ = 70 Marks)**

1. (a) Explain why sucrose is a non-reducing sugar and fructose is a reducing sugar with suitable structures.
   (b) Describe the role of Fehling B in the determination of reducing sugars with appropriate structures.
   (c) What are osazones? Explain its significance.
   (d) Write any six reactions of maltose.

2. Enlist any ten methods used for the analysis of fats and oils. Write the procedure, principle and significance of any three of them with appropriate chemical equations.

3. Explain any seven methods by which end groups of proteins are ascertained with suitable chemical equations.

4. (a) What are oxytocin and thyroxine?
   (b) Explain how the structure of oxytocin and thyroxine was elucidated.

5. (a) Write the source, structure, nomenclature and uses of arbutin, amygdalin and quercetin.
   (b) Enumerate the steps involved in the synthesis of citral and menthol.

6. (a) What are terpenoids? Explain isoprene rule and special isoprene rule with suitable examples.
   (b) What are flavanoids? Explain the general method of structural elucidation of flavanoids along with their four synthetic methods.

7. (a) Explain how the structure of atropine was elucidated along its synthesis.
   (b) Write the synthesis, therapeutic category and uses of caffeine.

8. (a) What are alkaloids?
   (b) Classify them with structural examples.
   (c) Explain the general method of structural elucidation of alkaloids.

9. (a) Write the structure of the following:

   (i) Steroid having cis-anti-trans-anti-trans backbone. (ii) 5-α -cholestane.

   (iii) 17, 21-dihydroxy pregna-1, 4-diene-3, 11, 20-torine (iv) 5-β estrance
   (b) What are steroidal saponins. Classify them with structural examples.
   (c) Explain any four methods employed for the isolation of steroids.

10. What are glucocorticoids and mineralcorticoids? Write the structure, biological action, uses and mechanism of action for any one glucocorticoid and any one mineralocorticoid.

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**Code No. 12031/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, March 2021

## Subject: Pharmaceutical Biochemistry

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x $17^{1/2}$ = 70 Marks)**

1. Explain transport process across cell membrane.
2. Explain the biochemical organization of a cell.
3. Explain mechanism of action and inhibition of enzymes.
4. Explain about Glygenolysis and electron transport.
5. Explain biosynthesis of cholesterol.
6. (a) What are ketone bodies? Explain biosynthesis of ketone bodies.
   (b) Explain about biosynthesis of saturated fatty acids.
7. Explain biosynthesis of purine and pyrimidines.
8. (a) What are nucleotides.
   (b) Explain the formation of uric acid
   (c) Write a note on transcription.
   (d) Write a note on translation.
9. Explain the Qualitative and quantitative analysis of blood for SGPT and Bilirubin.
10. Qualitative and quantitative analysis of urine for bile pigments and ketone bodies.

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**Code No. 12030/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, March 2021

## Subject: Pharmaceutical Engineering - II

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x 17 $^{1/2}$ = 70 Marks)**

1. (a) Explain the procedure to determine the particle size and particle size distribution by sieve analysis.
   (b) Differentiate between end runner mill and edge runner mill.
2. (a) Write construction and working of Podbielniak extractor with help of diagram.
   (b) Differentiate between maceration and percolation process.
3. (a) Write the material and energy balances in evaporation process.
   (b) Write working principles of short tube evaporators.
4. (a) Explain the theories applied to binary mixtures in distillation process.
   (b) Explain the principle and working of steam distillation in large scale.
5. (a) Explain different stages in drying rate curve and mention the significance of EMC.
   (b) Write construction working of tray dryer.
6. (a) Describe the different gas absorption towers.
   (b) Explain the concept of two way flow through packed tower and mention the importance of flood point.
7. Explain different ion exchange resins principle of working and mention their applications in pharmacy.
8. (a) Classify different liquid-liquid mixing devices and mention their operation, advantages and drawbacks.
   (b) What is vortex formation and mention the preventive measures.
9. Describe the factors affecting strength of granules and tablets.
10. Explain the working principle of measurement devices for temperature and vacuum.

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**Code No. 12032/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, March 2021

## Subject: Biostatistics (Pharmacostatistics)

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **($4 \times 17^{1/2} = 70$ Marks)**

1. (a) Explain about Histogram and Ogive curves.
   (b) Explain about Correlation and Regression.
   (c) Explain about classical definition of Probability.

2. (a) Find out the arithmetic average, standard deviation, coefficient of variation from the following data:

| Class Interval | Frequency | Class Interval | Frequency |
|---|---|---|---|
| 0-5 | 5 | 20-25 | 12 |
| 5-10 | 8 | 25-30 | 7 |
| 10-15 | 10 | 30-35 | 4 |
| 15-20 | 15 | 35-40 | 3 |

   (b) Explain about measures of dispersion.
3. (a) Explain about Poisson distribution with two examples.
   (b) Explain about Addition and Multiplication theorems of probability.

4. (a) Define normal distribution and state its properties.
   (b) Find the probability of having 53 Sundays in a leap year.
5. (a) Explain about 2D and 3D diagrams.
   (b) Explain about Sampling errors.
   (c) Explain Sampling Distributions.

6. (a) Random Sampling Methods.
   (b) Cluster Sampling.
7. (a) Define Point estimation and interval estimation.
   (b) Explain steps which are involved in testing of Hypothesis.

8. (a) Explain about t-test and paired t-test.
   (b) Bayesian estimation.
9. (a) Explain about analysis of variance one way classification.
   (b) Explain Chi-Square test of goodness of fit.

10. (a) Explain about basic principles of Design of Experiments.
    (b) Explain about Randomised Block Design.





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**Code No.6243/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2020

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions** **(4 x 17 ½=70Marks)**

1. (a) What are anomers? Give two structural examples.
   (b) Complete the following reaction along with their structures:

   Fructose $\xrightarrow{HNO_3}$

   Maltonic acid $\xrightarrow{Dimethylsu\ \ Iphate}$

   Sucrose $\xrightarrow{acetic\ \ anhydride}$

   (c) Write any eight pharmaceutical/medicinal importance of fats and oils.

2. (a) Explain any four methods employed for isolation and extraction of fats/oils with appropriate schematic diagram.
   (b) List down the impurities present in crude fats/oils. Describe any four methods used for refining/purification of fats and oils.

3. (a) What is insulin and how the structure of insulin was elucidated.
   (b) Write down the structure and nomenclature of any two hydrophilic amino acids and any two Hydrophobic amino acids.
   (c) Explain how hydrogen bond and electrostatic forces helps in stabilizing secondary structures of proteins.

4. Explain any seven properties of amino acids along with appropriate chemical equations.

5. (a) Write the structure of flavones. Leucoanthocyanidin, flavonol. Flavanone, isoflavone and anthocyanidin nucleus. Write three color tests which are used to distinguish them.
   (b) Write the structure, nomenclature and synthesis of quercetin.

6. Explain how the structure of citral and camphor was elucidated along with their synthesis.

7. Explain how the structure of papaverine and ephedrine was elucidated along with their synthesis and suitable chemical equations.

8. Explain how the structure of caffeine and uric acid was elucidated along with their synthesis and suitable chemical equations.

9. What are steroidal contraveptives? Classify them along with structural examples, dosage regimen and mechanism of action.

10. Write the structure, and uses of cortisone, prednisone, deoxycorticosterone, disogenin, hecogenin, digitoxin and sodium glycocholate.

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Code No.6248/CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, October 2020

## Subject: Green Chemistry (Elective)

**Time: 2 Hours** **Max. Marks: 70**

**Note : Answer any Four questions** **(4 x $17^{1/2}$ = 70 Marks)**

1. Write the various synthetic approaches of green chemistry.
2. Describe the history and development of green chemistry.
3. Write the principle and process involved in Michael reaction and Wurtz synthesis.
4. Discuss about solvent less organic synthesis.
5. Explain about ultrasonic mediated reactions.
6. Discuss the principle and process involved in Fries rearrangement and Metal halide reduction by microwave method.
7. Write a note on Bio catalytic reactions.
8. Give a note on reactions catalysed by metal catalysts.
9. Discuss the green synthesis for Paracetamol and Nicotinic acid.
10. Discuss about alternative reagents used in green chemistry strategies.

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**Code No.6247/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, October 2020

## Subject: Pathophysiology

**Time: 2 Hours** **Max. Marks: 70**

**Note : Answer any Four questions** **(4 x $17^{1/2}$ = 70 Marks)**

1. (a) Explain different causes of cell injury.
   (b) Write briefly about the mechanism of wound healing in skin.

2. (a) Explain the role of various chemical mediators of inflammation.
   (b) Discuss the process of atherosclerosis.

3. (a) Describe myocardial infraction its causes and management.
   (b) Define the term bronchial asthma and write its pathogenesis.

4. (a) Write briefly about acute renal failure.
   (b) Discuss the pathogenesis of angina pectoris.

5. (a) What is anaemia? Classify various types of anaemia along with its symptoms.
   (b) Write the pathogenesis of type-I Diabetes.

6. (a) Discuss the pathophysiology of Parkinson's disease.
   (b) What is Epilepsy? Explain its pathogenesis.

7. (a) Explain the pathogenesis of cancer.
   (b) Discuss the pathophysiology of Rheumatoid arthritis.

8. (a) Describe the causes and symptoms of osteoporosis.
   (b) What are the causes and symptoms of alcoholic liver disease?

9. (a) Discuss the symptoms and etiology of tuberculosis.
   (b) Write a note on AIDS.

10. (a) Discuss the causes and symptoms of syphilis.
    (b) Write the pathophysiology of leprosy.

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**Code No.6246/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV - Semester (CBCS) (Backlog) Examination, October 2020

## Subject: Biostatistics (Pharmacostatistics)

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4X17 ½ =70Marks)**

1. (a) Explain about measures of average.
   (b) Explain about principles of least squares.

2. From the data given below, state which team (A or B) is more consistent:

| No. of goals scored in a match | No. of Matches | |
|---|---|---|
| | A | B |
| 0 | 27 | 1 |
| 1 | 9 | 5 |
| 2 | 8 | 8 |
| 3 | 5 | 9 |
| 4 | 1 | 27 |

3. (a) Explain about Stem and leaf Plots.
   (b) Explain about Binomial Distribution and Poisson distribution with examples.

4. (a) Box and whisker plots.
   (b) When two cards are drawn, find the probability of getting the drawn are two cards are either Red or Black.6

5. Explain about
   (a) Stratified Random sampling.
   (b) Simple Random Sampling.
   (c) Non-Sampling Errors.

6. (a) 2-D and 3-D diagrams.
   (b) Type I and Type II errors.

7. Define:
   (a) Null hypothesis and Alternative hypothesis.
   (b) Explain the steps involved in testing of Hypothesis.
   (c) Point estimation.

8. Explain about
   (a) Parametric and Non parametric tests.
   (b) t-test and F-test.8

9. (a) Explain the basic principles of Design of Experiments.
   (b) Explain about Chi-square test of Independence of Attributes.

10. (a) Explain about assignable causes and chance causes.
    (b) Explain about Latin Square Design.

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**Code No.6245/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2020

## Subject: Pharmaceutical Biochemistry

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any four questions.** **(4 x $17^{1/2}$=70Marks)**

1. Explain production of ATP and its biological significance.

2. Explain how to determine free energy from equilibrium constant.

3. What are co-enzymes? Explain in detail about mechanism of action and applications of Co-enzymes and Iso-enzymes.

4. Explain about Glycolysis and Glyoxalate cycle.

5. (a) What are essential fatty acids? Explain about biosynthesis of unsaturated fatty acids.
   (b) Explain metabolism of cholesterol.

6. (a) Explain beta oxidation and oxidation of unsaturated fatty acids.
   (b) Explain about phospholipids and spingolipids.

7. (a) Explain DNA repair mechanism.
   (b) Explain physical and chemical mutagenesis.

8. Explain biosynthesis of RNA and DNA.

9. Explain the qualitative and quantitative analysis of urine for bile salts and albumin.

10. Explain role of cyclic ϕ in enzyme activation.

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Code No.6244/CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, November 2019

## Subject: Pharmaceutical Engineering - II

**Time: 2 Hours** **Max. Marks: 70**

**Note: Answer any Four questions.** **(4x171/2=70Marks)**

1. (a) Explain the procedure to determine the particle size and particle size distribution by sieve analysis.
   (b) Differentiate between end runner mill and edge runner mill.

2. (a) Write construction and working of Podbielniak extractor with help of diagram.
   (b) Differentiate between maceration and percolation process.

3. (a) Write the material and energy balances in evaporation process.
   (b) Write working principles of short tube evaporators.

4. (a) Explain the theories applied to binary mixtures in distillation process.
   (b) Explain the principle and working of steam distillation in large scale.

5. (a) Explain different stages in drying rate curve and mention the significance of EMC.
   (b) Write construction working of tray dryer.

6. (a) Describe the different gas absorption towers.
   (b) Explain the concept of two way flow through packed tower and mention the importance of flood point.

7. Explain different ion exchange resins principle of working and mention their applications in pharmacy.

8. (a) Classify different liquid-liquid mixing devices and mention their operation, advantages and drawbacks.
   (b) What is vortex formation and mention the preventive measures.

9. Describe the factors affecting strength of granules and tablets.

10. Explain the working principle of measurement devices for temperature and vacuum.

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**Code No. 13211 / CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019**

**Subject: Pharmaceutical Chemistry**
**(Chemistry of Natural Products)**

**Time: 3 Hours** **Max.marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

| | | | |
|---|---|---|---|
| 1 | a) | Explain how the straight chain structure, cyclic structure and configuration of glucose were elucidated along with appropriate chemical equations. | 12 |
| | b) | Define polysaccharides. Give one specific structural example. | 2 |
| | | **OR** | |
| | c) | Define fats and oils with a specific structural example. Explain the various chemical reactions of fats / oils along with their significance. | 2+12 |
| 2 | a) | Define proteins. Write the structure and nomenclature of any two proteins. | 4 |
| | b) | Write the structure, chemistry and therapeutic uses of thyroxin. | 10 |
| | | **OR** | |
| | c) | Write the structure, nomenclature, mechanism of action and uses of oxytocin. | 7 |
| | d) | Explain the chemistry and uses of insulin. | 7 |
| 3 | a) | What are flavonoids? Explain the general methods of structure elucidation of flavonoids. | 10 |
| | b) | Write the biological significance of flavonoids. | 4 |
| | | **OR** | |
| | c) | Write the structure, nomenclature, mechanism of action and uses of quercetin. | 8 |
| | d) | Write the general method of isolation and purification of terpenoids. | 6 |
| 4 | a) | Explain whether the following statements, are true or false along with suitable chemical equations:<br>i) Ephedrine reacts with nitrous acid to form a diazonium salt.<br>ii) Papaverine reacts with cold dilute potassium permanganate to form veratric acid. | 5 |
| | b) | What are alkaloids? Explain the general method for elucidating the structure of alkaloids. | 9 |
| | | **OR** | |
| | c) | Explain how the structure of atropine can be elucidated by chemical reactions and spectral analysis. | 10 |
| | d) | Write the structure, nomenclature and uses of quinine sulphate and caffeine. | 4 |
| 5 | a) | Distinguish between steroids and sterol. Explain the stereochemistry of steroids with structural examples. | 8 |
| | b) | Write the structure, nomenclature and uses of prednisone and aldosterone. | 6 |
| | | **OR** | |
| | c) | Explain the chemistry and biological role of cholesterol and sodium taurocholate. | 10 |
| | d) | Write the structure and uses of ethinyl estradiol and norgestrel. | 4 |

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Code No. 13215/CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, August 2019

**Subject : Pathophysiology (Elective)**

**Time : 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

1 (a) Explain different causes of cell injury.
(b) What are the factors influencing the healing of wounds?

**OR**

(c) Discuss about mechanism of inflammation.

2 (a) Write the pathogenesis of hypertension.
(b) Write the pathogenesis of atherosclerosis.

**OR**

(c) Write the Etiopathogenesis of angina pectoris.
(d) Write the Pathogenesis of Chronic renal failure.

3 (a) Write the pathogenesis of type-I Diabetes.
(b) Explain the pathophysiology of Parkinsonism.

**OR**

(c) Explain the pathogenesis of iron deficiency anemia and megaloblastic anemia.
(d) Discuss Pathology of schizophrenia.

4 (a) Discuss Pathogenesis of Rheumatoid Arthritis or gout.
(b) Write about etiopathogenesis of Jaundice.

**OR**

(c) Write about Etiopathogenesis of cancer.
(d) Explain Pathophysiology of Inflammatory bowel disease.

5 (a) Write a note on AIDS.
(b) Write a note on etiopathogenesis of Meningitis.

**OR**

(c) Write about Etiopathogenesis of gonorrhea.
(d) Write about Etiopathogenesis of typhoid.

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**Code No. 13216 /CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV-Semester (CBCS) (Backlog) Examination, August 2019**

**Subject: Green Chemistry (Elective)**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

1. a) Explain basic principles of green chemistry with suitable chemistry. 14

**OR**

b) Discuss the various synthetic approaches of green chemistry.

2. a) Explain how the following drugs are synthesized by green chemistry methods giving principle and procedure.
i) Paracetamol ii) Ibuprofen iii) Aspirin 14

**OR**

b) Write a note on
i) Phase transfer catalysts ii) Ionic liquids

3. a) Discuss the principle and process involved in Fried rearrangement and Metal halide reduction in microwave irradiation method. 14

**OR**

b) Discuss the principle and process involved in strecker synthesis and Reformats reaction in Ultra sonification technique.

4. a)Discuss the future trends in green chemistry. 14

**OR**

b) Discuss the principle and process involved in solid supported reactions giving suitable examples.

5. a) By giving suitable examples, explain Wurtz synthesis and Micheal addition using water as solvent. 14

**OR**

b) Write a note on solvent less organic synthesis with suitable examples.

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Code No. 13214 / CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019

## Subject: Biostatistics (Pharmacostatistics)

**Time: 3 Hours** **Max.marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

1 a) Define a Mean, Median and mode. 5

b) From the following data relating to the marks, find mean, median and mode? 9

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|---|---|---|---|---|---|---|---|
| No. of students | 4 | 12 | 41 | 27 | 13 | 9 | 4 |

**OR**

c) Define correlation? Explain the various types of correlation? 8

d) Explain about histograms. 6

2 a) Write a note on

i) Stem and leaf plots 7

ii) Box and whisker plots 7

**OR**

b) What do you mean by a normal distribution? State its importance and various properties with suitable example? 14

3 a) Explain in detail:

i) 2-D and 3-D diagrams 7

ii) Bar and Pie diagram 7

**OR**

b) Write a note on: 14

i) Stratified sampling

ii) Random sampling methods

4 a) Explain the following: 14

i) Point estimation

ii) Bayesian estimation

**OR**

b) Explain about the parametric and non-parametric tests. 14

5 a) Explain briefly about “Randomized block diagram”? 7

b) Write the applications of Chi-square test. 7

**OR**

c) Explain about analysis of variance and its importance. 7

d) Explain t-test and importance with an example. 7

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Code No. 13213 / CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019

### Subject: Pharmaceutical Biochemistry

**Time: 3 Hours** **Max.marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

| | | | |
|---|---|---|---|
| 1 | a) | Explain the biochemical organization of cell with a neat labeled diagram. | 10 |
| | b) | Write about energy rich compounds. | 4 |
| | | **OR** | |
| | c) | Explain Passive and Active transport mechanisms across the cell membrane. | 10 |
| | d) | Explain about free energy concept. | 4 |
| 2 | a) | Define and classify enzymes with examples. Write the clinical applications of enzymes. | 10 |
| | b) | Explain the process of enzyme inhibition. | 4 |
| | | **OR** | |
| | | Explain: | |
| | c) | Glycolysis | 7 |
| | d) | Krebs Cycle | 7 |
| 3 | a) | Write briefly about the biosynthesis of ketone bodies and add a note on keto acidosis. | 8 |
| | b) | Explain the regulation of cholesterol biosynthesis. | 6 |
| | | **OR** | |
| | c) | Explain the – oxidation of fatty acids. | 7 |
| | d) | Write short note on fate of dietary lipids. | 7 |
| 4 | a) | Discuss the metabolism of amino acids. | 8 |
| | b) | Write a note on urea cycle. | 6 |
| | | **OR** | |
| | | Write short note on: | |
| | c) | Protein synthesis | 8 |
| | d) | DNA repair mechanism | 6 |
| 5 | a) | Explain various qualitative tests to detect abnormal constituents in urine. | 7 |
| | b) | Explain principle, procedure involved in the quantitative estimation of i) Glucose, ii) Biluribin. | 7 |
| | | **OR** | |
| | c) | Explain the principle, procedure, involved in the quantitative estimation of i) SGPT, ii) Urea. | 9 |
| | d) | Discuss the role of cyclic AMP in enzyme activation. | 5 |

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**Code No. 13212 / CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV – Semester (CBCS) (Backlog) Examination, July 2019**

**Subject: Pharmaceutical Engineering – II**

**Time: 3 Hours** **Max.marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

| | | | |
|---|---|---|---|
| 1 | a) | Write the principle, construction, working and applications of ball mill with neat labeled diagram. | 8 |
| | b) | Explain principle, construction and working of diffusion battery. | 6 |
| | | **OR** | |
| | c) | Discuss the factors affecting selection and efficiency of extraction. | 6 |
| | d) | With a neat labeled diagram, explain the designing and operation of bag filters. | 8 |
| 2 | a) | Write the principle involved in distillation under reduced pressure along with advantages and disadvantages. | 7 |
| | b) | Explain the theory and working principle involved in fractional distillation. | 7 |
| | | **OR** | |
| | c) | Explain theory, equipment and applications of steam distillation. | 8 |
| | d) | Write principle, construction and working of climbing film evaporator. | 6 |
| 3 | a) | Classify dryer. Write principle, construction, working, applications, advantages and disadvantages of freeze dryer. | 10 |
| | b) | Explain two phase flow through packed towers in gas absorption. | 4 |
| | | **OR** | |
| | c) | Explain mechanism of crystallization and write Mier's super saturation theory with its limitations. | 8 |
| | d) | Write construction and working principle of Swenson Walker crystallizer. | 6 |
| 4 | a) | Classify mixers used in solid-solid mixing and write construction and working of planetary mixer. | 8 |
| | b) | Write about different types of impellers used in liquid-liquid mixing. | 6 |
| | | **OR** | |
| | c) | Explain principle, construction and working of triple roller mill. | 7 |
| | d) | Write the principle and applications of ion exchange resin. | 7 |
| 5 | a) | Define automatic process control system. Explain about open and closed loop systems with diagrams. | 6 |
| | b) | Describe the measurement techniques for temperature control. | 8 |
| | | **OR** | |
| | c) | Explain the factors affecting strength of granules and tablets. | 14 |

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**Code No. 13020 / CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019

**Subject : Biostatistics (Pharmacostatistics)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

1 (a) Explain about Mean, Median. (7)
(b) Explain about Histogram and OGIVE curve (7)

**OR**

2 Find Mean, Median and Mode to the following data. (14)

| Class Interval | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
|---|---|---|---|---|---|
| Frequency | 18 | 27 | 45 | 25 | 15 |

3 Explain about
(a) Normal distribution and its properties (8)
(b) Stem and Leaf Plots (6)

**OR**

4 (a) Define Binomial Distribution and Poisson Distributions. (8)
(b) Explain about Box and Whisker plots. (6)

5 Explain about : (14)
(a) Random sampling Methods
(b) Cluster sampling methods

**OR**

6 Explain about:
(a) 2-D diagrams (14)
(b) Stratified Random Sampling.

7 Define: (14)
(a) Type-I and Type-II Errors
(b) Explain the steps which are involved in testing of Hypothesis.

**OR**

8 Explain about
(a) t-test for difference of Means and paired t-test. (10)
(b) F-test (4)

9 Discuss about:
(a) Basic Principles of Design of Experiments. (7)
(b) Explain about Randomised Block design of experiments. (7)

**OR**

10 (a) Explain about Latin square Design with ANOVA Table. (8)
(b) Explain about assignable causes and chance causes. (6)

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Code No. 13017/CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Suppl.) Examination, February 2019

### Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks**

1. a) Elucidate the structure of Fructose. (8)
   b) Describe the reaction of carbohydrates with Phenyl hydrazine. (6)

**OR**

2. a) Define and classify the lipids. Explain the IP analytical methods of oils. (8)
   b) Classify carbohydrates and write about the color reactions of carbohydrates. (6)

3. a) Discuss about protein synthesis. (8)
   b) Write a note on Insulin. (6)

**OR**

4. a) Give the structure elucidation of Thyroxin. (9)
   b) Write the structure, chemistry and therapeutic uses of Oxytocin. (5)

5. a) Write the constitution of Camphor. (9)
   b) Write the source and structure of Citral and Arbutin. (5)

**OR**

6. a) Write the constitution of Menthol. (9)
   b) Define and explain isoprene and special isoprene rule. (5)

7. a) Define alkaloids and write their identification tests. (4)
   b) Write about isolation of caffeine from tea leaves and elucidate the structure of caffeine. (10)

**OR**

8. a) Write the structure and uses of Papaverine and Uric acid. (4)
   d) Write the structural elucidation of Atropine. . (10)

9. a) Write the classification and biological significance of bile acids. (10)
   b) Write a note on progestational agents. (4)

**OR**

10. a) Write a note on oral contraceptives. (6)
    b) Define and classify steroids. Write the structures and therapeutic uses of Corticosteroids. (8)

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**Code No. 13183 / CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019**

**Subject : Pathophysiology (Elective)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

| | | | |
|---|---|---|---|
| 1 | a) | What are the causes of cell injury? | (7) |
| | b) | What is hypertrophy and hyperplasia? | (7) |
| | | **OR** | |
| 2 | a) | Explain the role of various chemical mediators of inflammation. | (7) |
| | b) | Write briefly about the principle of wound healing in skin. | (7) |
| 3. | a) | What is hypertension? Explain its pathogenesis. | (7) |
| | b) | Discuss the etiology, pathogenesis of acute or renal failure. | (7) |
| | | **OR** | |
| 4 | a) | Discuss the pathogenesis of Asthma. | (7) |
| | b) | Describe angina pectoris its causes and symptoms. | (7) |
| 5 | a) | What is anaemia? Classify various types of anaemia along with its symptoms. | (7) |
| | b) | Discuss the pathophysiology of Diabetes mellitus. | (7) |
| | | **OR** | |
| 6 | a) | Discuss the pathophysiology of peptic ulcer. | (7) |
| | b) | Discuss the pathophysiology epilepsy or Parkinson's disease. | (7) |
| 7 | a) | Define cancer. Discuss the pathophogenesis of cancer. | (7) |
| | b) | Discuss the pathophysiology of Rheumatiod arthritis or gout. | (7) |
| | | **OR** | |
| 8 | a) | Describe the cause and symptoms of Jaundice. | (7) |
| | b) | Describe various symptoms, causes and treatment of Osteoporosis. | (7) |
| 9 | a) | Discuss the symptoms and etiology od AIDS. | (7) |
| | b) | Define typhoid and its pathophysiology. | (7) |
| | | **OR** | |
| 10 | a) | Explain the causes and symptoms of Syphilis. | (7) |
| | b) | Write the pathophysiology of Urinary Tract infections. | (7) |

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Code No. 13021 / CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Suppl.) Examination, February 2019

**Subject : Green Chemistry (Elective)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

1 Describe the history and development of green chemistry.

**OR**

2 Explain basic principles of green chemistry with suitable examples.

3 Discuss about Michael and Wurtz synthesis.

**OR**

4 Solvent less organic synthesis.

5 Discuss about microwave mediated reactions.

**OR**

6 Ultrasonic mediated reactions.

7 Write a note on Biocatalytic reactions

**OR**

8 Write a note on Phase-transfer catalysts.

9 Discuss the green synthesis for (a) Paracetamol or (b) Aspirin

**OR**

10 Discuss the green synthesis for (a) Ibuprofen (b) Nicotinic acid

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**Code No. 13018/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Supplementary) Examination, February 2019

**Subject: Pharmaceutical Biochemistry**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks.**

1. a) Explain about the organization of cell. 7M

   b) Explain Redox potential and free energy constant. 7M

**OR**

2. Explain the mechanism of active and passive transport. 14M
3. Explain the phosphate pathway and its significance. 14M

**OR**

4. Explain the following: 14M
   a) Glycogenolysis

   b) Electron transport
5. Explain Biosynthesis of saturated and unsaturated fatty acids. 14M

**OR**

6. a) What are ketone bodies? Explain biosynthesis of ketone bodies 7M
   b) Explain the fate of dietary lipids. 7M
7. Explain Biosynthesis of purines and pyrimidines. 14M

**OR**

8. a) What are nucleosides? 4M
   b) Write a note on transcription and translation. 10M
9. Write the principle of Qualitative and Quantitative analysis of blood for SGPT, Bilerubin and glucose. 14M

**OR**

10. Explain Qualitative and Quantitative analysis of Urine for albumin, ketone bodies, glucose. 14M

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Code No. 13019/CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Suppl.) Examination, February 2019

### Subject: Pharmaceutical Engineering - II

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks**

1 a) Write procedure for determination of particle size by sieving method along with representation of particle size distribution. 7
b) Write construction and working of Double Cone Classifier. 7

**OR**

2 a) Explain the theories of size reduction. 6
b) Write the construction and working principle of any one fine grinder. 8

3. Describe the construction, working principle, advantage and disadvantages of falling film and climbing film evaporators with the help of diagrams. 14

**OR**

4 a) Explain the theory of rectification 6
b) Describe the construction, working principle and limitations of molecular distillation unit. 8

5 a) Write the construction, working principle, advantage and disadvantages of freeze dryer 8
b) Explain the stages in drying rate curve and mention their importance. 6

**OR**

6 a) Explain the importance of gas absorption in pharmacy. 4
b) Describe the steps involved in crystallization process. 5
c) Explain the concept of caking of crystals and its prevention. 5

7 a) Explain different types of mixing impellers and their characteristics. 5
b) Write construction and working of triple roller mill along with diagram. 9

**OR**

8 a) Describe the sampling considerations during mixing unit operation. 6
b) Write the construction, working principle and advantages of any solid liquid mixer 8

9. a) Explain the factors influencing strength of tablets. 7
b) Describe the transmission of forces through powders during compaction. 7

**OR**

10 a) Write the mechanism of feed forward and feedback controls in pharmaceutical field. 6
b) Explain the approaches to measure pressure. 8

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**Code No. 1201/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Main) Examination, August 2018

## Subject: Pharmaceutical Biochemistry

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks**

1 a) Explain about the organization of cell. 7

b) Explain Redox potential and free energy constant. 7

**OR**

c) Explain the mechanism of active and passive transport. 14

2. a) Explain penstose phosphate pathway and its significance. 14

**OR**

c) Explain any two of following: 14

i. Glycogenolysis

ii. Electron transport

iii. Glycogenesis

3 a) Explain Biosynthesis of saturated and unsaturated fatty acids. 14

**OR**

b) What are ketone bodies? Explain biosynthesis of ketone bodies. 7

c) Explain the fate of dietary lipids. 7

4 a) Explain Biosynthesis of purines and pyrimidines 14

**OR**

b) What are nucleosides? 4

c) Write a note on transcription and translation 10

5. a) Write the principle of Qualitative and Quantitative analysis of blood for SGPT, Bilerubin and glusocse 14

**OR**

b) Qualitative and Quantitative analysis of Urine for albumin, ketone bodies, glucose. 14

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**Code No. 1199/CBCS**

# FACULTY OF PHARMACY

## B. Pharmacy IV – Semester (CBCS) (Main) Examination, July 2018

## Subject: Pharmaceutical Chemistry (Chemistry of Natural Products)

**Time: 3 Hours** **Max. Marks: 70**

1. a. Explain whether the following statements are true or false along with appropriate structure and/or chemical equations: (3×2 = 6)
   i. Fructose is a reducing sugar and maltose is a non reducing sugar.
   ii. Glyceryl trioleate becomes solid upon treatment with hydrogen and nickel at 150-200 °C under pressure.
   iii. Castor oil shows an acetyl value of less than one.

   b. Write the principle and significance of Acid value, ester value, saparification value and iodine number in analysis of fats and oils (8)

   **OR**

   c. Write the structure, and reactions of glucose and fructose (6)
   d. Explain the various methods employed for the isolation and purification of fats and oils. (8)

2. a. Explain the primary, secondary, tertiary and quaternary structure of proteins. (14)

   **OR**

   b. Explain the various methods of end group analysis for proteins. (8)
   c. Describe the nomenclature of proteins with appropriate examples (3)
   d. Write the structure, nomenclature and uses of oxytocin. (3)

3. a. Explain how the structure of quercetin can be established by chemical reactions and spectral analysis. (8)
   b. Write the structure, nomenclature and uses of menthol and citral. (6)

   **OR**

   c. Write the structure, nomenclature and uses of amygdalin and arbutin. (6)
   d. Explain the methods of isolation of Terpences (Volatile oils) (8)

4. a. Explain how the structure of Atropine can be elucidated with suitable chemical reactions and spectral analysis. (14)

   **OR**

   b. Write the importance of the following in analysis/identification of alkaloids. (14)
   i. Ziesel's method ii. Herzig-Meyer method
   iii. Von Braun's method iv. Dragendroff's test

5. a. Write the structure and uses of stigmasterol, disogenin, hecogenin and digitoxin. (8)
   b. What are glucocorticoids? Write the structure, nomenclature, biological role and uses of cortisone. (6)

   **OR**

   c. Write structure chemistry and Pharmacological actions of cardiac glycosides (14)

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Code No. 1203 / CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018

**Subject : Pathophysiology (Elective)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

1 a) Describe Cell injury. What are the causes of cell injury? (7)
b) Write briefly about the basic mechanism involved in the process of inflammation. (7)

**OR**

c) Describe the process of wound healing. (7)
d) Discuss the pathophysiology of Atherosclerosis. (7)

2 a) Describe myocardial infraction its causes and management. (7)
b) Define the term Bronchial Asthma. Write the pathogenesis with a neat diagram (7)

**OR**

c) Discuss the pathogenesis of COPD. (7)
d) Write briefly about chronic renal failure. (7)

3 a) Explain the cause of megaloblastic anaemia. (7)
b) Write a note on polycystic ovary syndrome. (7)

**OR**

c) Discuss the pathophysiology of Alzheimer's or Parkinson's disease. (7)
d) Discuss the pathophysiology epilepsy or peptic ulcer. (7)

4 a) What are the causes and symptoms of (14)
(i) Inflammatory Bowel disease
(ii) Jaundice

**OR**

c) Explain pathophysiology of (14)
(i) Rheumatoid arthiritis or gout
(ii) Pathyogenesis of cancer

5 a) Discuss the pathogenesis of meningitis. (7)
b) Discuss the pathophysiology of tuberculosis. (7)

**OR**

c) Discuss the causes and symptoms of Gonorrhea. (7)
d) Discuss the life cycle of organism causing leprosy. (7)

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**Code No. 1204 / CBCS**

# FACULTY OF PHARMACY

**B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018**

**Subject : Green Chemistry (Elective)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

1 (a) Discuss the basic principles of green chemistry.

**OR**

(b) Mention the various synthesis approaches of green chemistry.

2 (a) By giving principle and process involved, discuss two reactions each for Michael and Wurtz synthesis.

**OR**

(b) Discuss about various alternative solvents used in green chemistry strategies.

3 (a) Write a note on microwave mediated reactions.

**OR**

(b) Ultrasonic mediated reactions.

4 (a) Write a note on phase transfer catalysis.

**OR**

(b) Write a note on Ionic liquids.

5 Explain the Green synthetic strategies for
(a) Paracetamol and Ibuprofen

**OR**

(b) Aspirin and Nicotinic acid.

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Code No. 1202 / CBCS

# FACULTY OF PHARMACY

## B. Pharmacy IV-Semester (CBCS) (Main) Examination, August 2018

**Subject : Biostatistics (Pharmacostatistics)**

**Time : 3 Hours** **Max. Marks: 70**

***Note: Answer all questions. All questions carry equal marks.***

1 (a) Explain about : (14)
(i) Mean (ii) Median
(iii) Mode (iv) Standard deviation

**OR**

(b) Explain about
(i) HISTOGRAM and OGIVE curves (8)
(ii) Correlation and Regression. (6)

2 (a) Explain about
(i) Binomial Distribution (ii) Poisson Distribution (8)
(iii) Stem and leaf plots (6)

**OR**

(b) Explain about (14)
(i) Normal Distribution and its properties
(ii) Sub divided Bar and Pie diagrams

3 (a) (i) Describe Stratified Random Sampling and Systematic Sampling methods. (7)
(ii) Bar and Pie diagram (7)

**OR**

(b) Explain
(i) Sampling and Non-Sampling Errors. (7)
(ii) Random Sampling methods. (7)

4 (a) Define: (14)
(i) Type-I & Type-II Errors (ii) Level of Significance
(iii) t-test for difference of Means

**OR**

(b) (i) Explain about Point estimation and interval estimation. (8)
(ii) Bayesian estimation (6)

5 (a) (i) Explain about Chi-Square test for independence of Attributes. (7)
(ii) Explain about assignable and chance causes. (7)

**OR**

(b) (i) Explain basic Principles of design of experiments. (7)
(ii) Explain about Randomised Block design. (7)

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**Code No. 1200/CBCS**

## FACULTY OF PHARMACY

### B. Pharmacy IV – Semester (CBCS) (Main) Examination, July 2018

### Subject: Pharmaceutical Engineering - II

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions. All questions carry equal marks**

1.a) How do you determine particle size of powders and its size distribution by sieve analysis. **(8)**

b) Write a note on: (i) Sedimentation. (ii) Elutriation. **(6)**

**(OR)**

c) Write construction and working principle of cyclone separator. **(6)**

d) Explain principle, construction and working of pod biel niak extractor with neat labeled diagram. **(8)**

2 a) Discuss the factors affecting evaporation. **(5)**

b) Write theory, equipment and applications of molecular distillation. **(9)**

**(OR)**

c) Write in detail about fractionating columns used in fractional distillation. **(7)**

d) Classify evaporators. Explain principle, construction and working of forced circulation evaporator**.** **(7)**

3 a) Explain the theory of drying with a detailed note on drying rate curve. **(7)**

b) Explain the principle, construction, working, applications, advantages and disadvantages of fluidized bed dryer. **(7)**

**(OR)**

c) What is caking of crystals and how it can be prevented? **(6)**

d) Write about properties of tower packing materials in gas absorption and tower construction. **(8)**

4 a) Write objectives of mixing. Explain about triple Roller Mill. **(8)**

b) Explain principle, construction and working of sigma blade mixer. **(6)**

**(OR)**

c) What is vortex formation? Write the disadvantages of vortex formation in liquid mixing and methods to prevent it **(6)**

d) Give the mixers used for mixing of immiscible liquids. Explain principle, construction and working of Silverson emulsifier. **(8)**

5 a) Write the types of process variables. Describe the equipment used for pressure control. **(8)**

b) Explain adhesion and cohesion of particles. **(6)**

**(OR)**

c) Write a note on measurement of punch forces. **(6)**

d) Explain about energy involved in granule compaction with a note on FD curve. **(8)**

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